



UNITED STATES PATENT AND TRADEMARK OFFICE

m-f

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/858,387	05/15/2001	Donald C.D. Chang	PD-201006A	3432
20991	7590	11/03/2006		
EXAMINER				
TORRES, MARCOS L				
ART UNIT		PAPER NUMBER		
2617				

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/858,387	CHANG ET AL.	
	Examiner	Art Unit	
	Marcos L. Torres	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 August 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 and 3-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 and 3-22 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8-16-06</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 8-18-2006 was considered during the time given to the examiner. If the applicant believes that a particular document is relevant to the prosecution of the case, the applicant is invited to mention the particular document and pages to the examiner.

Response to Arguments

2. Applicant's arguments filed 8-18-2006 have been fully considered but they are not persuasive.

3. Regarding applicant's arguments that Gross does not disclose a base station that have an adaptive antenna with a plurality of panels, each panel having a plurality of reconfigurable main array elements for generating a plurality of communication beams, as explained in the previous office action Gross disclose a base station that have an adaptive antenna with a plurality of reconfigurable elements, generating a plurality of communication beams (see col. 5, lines 26-56; col. 4, lines 49-54; col. 8, lines 20-25, 37-42). What does Gross does not teach is to group the main array antennas in panels, but that limitations are taught by the combination of Ward and Denney as previously stated in the prior office action.

4. Regarding applicant's arguments that Denney does not disclose simultaneous dynamic beams, Gross disclose that limitation in col. 8.

5. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that

any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

6. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

7. Regarding applicant's arguments that Kasperkovitz does not teach a limiter in a feedback path, claim 13 recites a limiter **coupled** within feedback path, therefore fig. 1 of Kasperkovitz disclose the above limitation. The rejection in record stands.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 2617

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1, 5-6, 8 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross (U.S. Patent US006507739B1) in view of Ward (U.S. Patent US006167286A), Denney (U.S. Patent US005995062A) and Turcotte US005856804A .

As to claims 1 and 5-6, Gross discloses a communication system for communicating with mobile user terminals comprising: a base station with a plurality of adaptive antenna elements, simultaneously generating a plurality of communication beams, (see fig. 2, items 202, 208, 213; col. 4, lines 3-9); and an access (gateway) station connected to said BTS, by a plurality of beams commands that communicate a plurality of control signals to the BTS to form the communication beams (see col. 5, lines 26-56; col. 4, lines 49-54; col. 8, lines 20-25) and generating a plurality of dynamic communication beams (see col. 8, lines 37-42). Gross do not specifically disclose a

plurality of main array antenna elements or wherein the adaptive antenna comprises a plurality of panels. In an analogous art, Ward disclosed the BTS with a plurality of adaptive main array antenna elements (see col. 6, lines 55-56; col. 10, line 66 – col. 11, line 27), thereby reducing interference. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the Gross apparatus for the simple purpose of improving signal quality.

The combination of Gross and Ward do not specifically disclose a communication system wherein the adaptive antenna comprises a plurality of panels. Denney discloses a communication system wherein the adaptive antenna comprises a plurality of panels (see col. 6, lines 39-45). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the Gross apparatus for reducing fading.

Gross, Ward and Denny do not disclose a beam that moves with each user. In another analogous art, Turcotte discloses a beam that moves with each user (see col. 10, lines 6-26), thereby reducing interference and improving efficiency. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine Denney and Ward teachings in the Gross apparatus for the simple reason of enhanced communication quality.

As to claim 8, Gross discloses a communication system with phased array antennas (see col. 4, lines 49-52).

As to claim 11, Gross discloses a communication system with a controller to control the antennas (see col. 4, lines 49-54).

Art Unit: 2617

As to claim 12, Gross discloses a communication system with user terminals receiving plurality of communication beams (see fig. 2, item 212,213).

11. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Ward and Turcotte and further in view of Keskitalo (U.S. Patent US005345448A).

As to claim 20, Gross discloses a base station generating a plurality of communication beams (see fig. 2, items 202, 208, 213; col. 4, lines 3-9); and an access (gateway) station connected to said BTS, by a plurality of dynamic link, forming beams commands that communicate a plurality of control signal to the BTS to form the communication beams (see col. 5, lines 26-56; col. 4, lines 49-54; col. 8, lines 20-25) the communication beams (see col. 5, lines 26-56; col. 4, lines 49-54; col. 8, lines 20-25) and simultaneously generating a plurality of dynamic communication beams (see col. 8, lines 37-42). Gross do not specifically disclose a plurality of main array antenna elements or receiving a first link from a first BTS of the plurality of BTS and a second link from a second BTS. Ward disclosed the BTS with a plurality of adaptive main array antenna elements forming a plurality of beams per panel (see col. 6, lines 55-56; col. 10, line 66 – col. 11, line 27), thereby reducing interference. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the Gross apparatus for the simple purpose of improving signal quality.

Gross and Ward do not specifically disclose a user receiving a first link from a first BTS of the plurality of BTS and a second link from a second BTS. Keskitalo discloses a user receiving a first link from a first BTS of the plurality of BTS and a

Art Unit: 2617

second link from a second BTS (see col. 4, lines 20-29), thereby enhancing reception and allowing to handover or process both link in case interference. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine Keskitalo and Ward teachings in the Gross apparatus for the simple reason of enhance the quality of communication using multiple links.

Gross, Ward and Keskitalo do not disclose a beam that moves with each user. In another analogous art, Turcotte discloses a beam that moves with each user (see col. 10, lines 6-26), thereby reducing interference and improving efficiency. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine Denney and Ward teachings in the Gross apparatus for the simple reason of enhanced communication quality.

Regarding claim 21 is the corresponding method claims of system claims 20. Therefore, claim 21 is rejected for the same reason shown above.

12. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Ward, Turcotte, and Denney as applied to claim 1 above, and further in view of Gutleber (U.S. Patent 4,500,883).

As to claim 3, Ward disclosed the BTS with a plurality of array antenna elements (see col. 10, line 66 – col. 11, line 27). Gross and Ward do not specifically disclose a communication system wherein the base station comprises a plurality of auxiliary elements for canceling interference. In an analogous art, Gutleber disclose a communication system wherein the base station comprises a plurality of auxiliary elements for canceling interference (see col. 4, lines 19-26). Therefore, it would have

been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the modified Gross and Ward system for the simple purpose of enhanced quality of communication by rejecting interference.

As to claim 4, OFFICIAL NOTICE IS TAKEN THAT the method of weighting signals to provide interference canceling is a common and well-known method. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the modified Gross and Ward system for the simple purpose of enhanced quality of communication by minimizing fading.

13. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Ward, Turcotte, and Denney as applied to claim 1 above, and further in view of Murray (U.S. Patent 5,666,128).

As to claims 9, Gross and Ward do not specifically disclose a communication system wherein the main array antenna elements are modular. Murray discloses a communication system wherein the main array antenna elements are modular (see col. 1, lines 4-7). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the modified Gross and Ward system for enhanced efficiency and lower production cost.

As to claims 10, Murray discloses a communication system wherein the main array antenna elements are modular (see col. 1, lines 4-7). Murray does not specifically disclose the modules couple to a bus. However OFFICIAL NOTICE IS TAKEN THAT the method of using a communication bus is a common and well-known method. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of

Art Unit: 2617

the invention to add this teaching to the modified Gross and Ward system for enhanced efficiency and cost effective.

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Ward, Turcotte, and Denney as applied to claim 1 above, and further in view of Kasperkovitz (U.S. Patent 4,631,499).

As to claim 13, Gross and Ward do not specifically disclose a communication system further comprising a limiter coupled to a feedback path. In an analogous art, Kasperkovitz discloses a communication system further comprising a limiter coupled to a feedback path (see col. 7, lines 6-9). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the modified Gross and Ward system for the simple purpose of controlling a device more efficiently.

15. Claims 14-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Ward, Turcotte, and Denney as applied to claims 1 above, and further in view of Agee (U.S. Patent US006128276A).

As to claim 14-17 and 19, Gross and Ward do not specifically disclose a communication system further comprising a nulling processor further comprising a code despread and weighted feedback. In an analogous art, Agee discloses a communication system further comprising a nulling processor further comprising a code despread and weighted feedback (see col. 23, lines 7-29; col. 11, lines 33-48). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to

add this teaching to the modified Gross and Ward system for the simple purpose of enhanced quality of communication by rejecting interference.

16. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Ward, Turcotte, and Denney as applied to claim 15 above, and further in view of Park (U.S.US006353643B1), and further in view of Janc (U.S. Patent 4,893,316) and further in view of Sayegh (U.S. Patent US006084541A).

As to claim 18, Gross discloses a communication system with a gateway station comprising an analog to digital converter (see col. 4, lines 47-54; col. 5, lines 32-37). Ward disclosed a communication system further comprising the BTS with a plurality of main array antenna elements (see col. 10, line 66 – col. 11, line 27). Ward does not specifically disclose a plurality of summing blocks coupled to the main array, or a gateway station comprising A/D converter coupled to a noise injection circuit and the summed signal and said summed signal coupled to a demultiplexer and a beam forming circuit. Park discloses a plurality of summing blocks coupled to the main array (see col. 2, lines 22-37). Janc discloses a communication system comprising A/D converter coupled to a noise injection circuit and the summed signal (see col. 4, lines 18-28). Sayegh discloses a demultiplexer and a beam forming circuit (see abstract). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to use this technique in order to process the signal.

17. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gross in view of Ward and Turcotte and further in view of Keskitalo (U.S. Patent US005345448A)

as applied to claims 20-21 above, and further in view of Gutleber (U.S. Patent 4,500,883).

As to claim 22, Ward disclosed the BTS with a plurality of array antenna elements (see col. 10, line 66 – col. 11, line 27). Gross and Ward do not specifically disclose a communication method wherein the base station comprises a plurality of auxiliary elements for canceling interference. In an analogous art, Gutleber disclose a communication system wherein the base station comprises a plurality of auxiliary elements for canceling interference (see col. 4, lines 19-26). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching to the modified Gross and Ward system for the simple purpose of enhanced quality of communication by rejecting interference.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this Office Action should be mailed to:

U.S. Patent and Trademark Office
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Or faxed to:

571-273-8300

for formal communication intended for entry, informal communication or draft communication; in the case of informal or draft communication, please label "PROPOSED" or "DRAFT"

Hand delivered responses should be brought to:

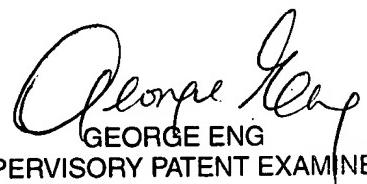
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcos L. Torres whose telephone number is 571-272-7926. The examiner can normally be reached on 8:00am-6:00 PM alt. Wednesday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-252-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marcos L Torres
Examiner
Art Unit 2617


mlt
GEORGE ENG
SUPERVISORY PATENT EXAMINER